

REMARKS

At the time that the Office Action issued, claims 1 to 15, 17 to 30, and 34 to 63 were pending. Of these, claims 1-5, 11-12, 20-25, 34-39.

Drawings

The Examiner is cordially thanked for having accepted the amended drawing filed with our previous response letter.

Explanation of the amendments

The word “static” has been deleted from claims 6 and 14 to broaden these claims. The specification supports broader claims, because in paragraph [0027] of the specification as originally filed, it is explained that “In one embodiment, the transmitter and the receiver are embodied in a single piezoelectric transducer 312, which is supported within the fluid in the chamber 300 by a static piston 314” and that “The transducer may, alternatively, be positioned on the piston 304”, whereby according to [0025], piston 304 is “slidably disposed within a second end 306 of the chamber 300...”.

New claims 64 and 65 have been introduced to retain the subject matter deleted from claims 6 and 14.

New claim 66 is based on original independent claim 1 combined with features from original dependent claims 2 and 3.

New claims 67 to 75 are all dependent on claim 66. Claims 67 to 69 recite subject matter taken from original claims 2 to 4. Claim 70 is based on original claim 5 read in combination with original claim 14 (in which the “transducer” appeared without it being limited to a “single piezoelectric transducer”). Claims 71 to 75 are based on subject matter taken from original claims 4 to 6.

It is thus respectfully submitted that the amendments are fully supported by the original application and do not constitute addition of matter.

Allowed claims and allowable subject matter

Claims 14-15, 17-19, and 41-63 were allowed. The Examiner is cordially thanked for having allowed these claims. Notwithstanding, Attorney for Applicant amends claim 14 by deleting the word “static”. It is respectfully submitted that this amendment should not affect the allowability of the claim, since the prior art of record does not disclose a piston of any type, static or sliding, for supporting the transducer within the fluid.

In addition, the Examiner is cordially thanked for further having identified claims 6-10, 13, 19, and 26-30 as containing allowable subject matter but objected to as being dependent

upon a rejected base claim. However, in view of arguments that will be presented hereinafter to overcome the rejections of the respective independent base claims, Attorney for Applicant has chosen not to amend the allowable dependent claims.

Finally, it is respectfully observed that Claim 40 has not been specifically rejected or objected to. Attorney for Applicant therefore assumes that there exists agreement with the Examiner that claim 40 also contains allowable subject matter. An explicit statement of allowability of Claim 40 is therefore kindly requested.

Rejections made in Numbered Paragraph 3 of the Office Action

Claims 1 and 2 have been rejected under 35 USC § 102(b) as being anticipated by Ounadjela (US Pat. 5,477,101).

Attorney for Applicant respectfully traverses the rejections.

Regarding claim 1, Numbered paragraph 3 of the Office Action states that Ounadjela discloses an apparatus (well 10) for acoustically analyzing a fluid (34) comprising: a chamber (tube 14) for holding the fluid (14); a transmitter (transducer 12) positioned within the chamber (14) for transmitting an acoustic signal through the fluid (34); a reflector (segment 20 inside the tube 14) positioned within the fluid (34) for reflecting the acoustic signal; and a receiver positioned within the chamber for detecting a reflection of the acoustic signal (receivers (not shown) are placed either in other adjacent wells or in the well 10 itself or else on the surface on the ground, col. 2, lines 59-62), furthermore, col. 2 lines 65-67 disclose the signals detected by the receivers are analyzed in order to determine the characteristics of the underground formations surrounding the well 10; wherein said apparatus is incorporated in a downhole sampling device (downhole acoustic transducer, col. 1, line 9).

In the opinion of Attorney, Ounadjela discloses a downhole acoustic transducer for use in a well such as an oil well for the purpose of generating or detecting acoustic waves. Depending on circumstances, the transducer constitutes a seismic source or a receiver. It is a stated object of Ounadjela to provide an acoustic transducer suitable for use as a borehole seismic source (Col. 2 lines 24-26). According to Col. 1 lines 16-25, such downhole seismic sources are used to determine underground geological characteristics in the region surrounding the well. They are designed to transmit the acoustic waves as fully as possible into the inside wall of the well. The measured waves, after having passed through the subsoil serve to determine the characteristics of the underground formations passed through. Also Col. 2 lines 65-67 state that the characteristics of the formations surrounding the well are determined. None is disclosed about acoustically analyzing a fluid.

Drive members 22 comprising piezo-electric pellets 24 are disposed within tube 14 pre-stressed against segments 20 using threaded rods 26 and nuts 28. The device of

Ounadjela either operates as a seismic source or as a receiver, but never both. This is inferred from Col. 4, lines 28-40 as well as from Col. 2 lines 58-62 which sum up the possibilities for the receiver placement but do not mention the same seismic source to contain, or function as, a receiver. Ounadjela, in fact, teaches away from employing the same tool as both a receiver and a transmitter, because Ounadjela recommends different wiring for each function: Col. 4 lines 28-37 disclose that when the acoustic transducer is a seismic source, the pellets 24 constituting the drive members 22 are preferably connected in parallel while, in contrast, when the acoustic transducer operates as a receiver, the pellets 24 are connected in series.

There is pressure compensation means for permanently balancing the hydrostatic pressure of the liquid or gaseous fluid filling the inside of volume 34 of the tube 14 relative to the pressure that exists outside of the tube 14. (Col. 4 line 50 – Col. 5 line 24). However, Ounadjela is explicit in that there is a fluid-tight separation between the inside fluid in volume 34 and the external fluid (Col. 5, lines 34-36).

Summarizing, contrary to the statement in Numbered paragraph 3 of the Office Action supporting the rejection, Ounadjela does not disclose:

a) an apparatus for acoustically analyzing a fluid – instead Ounadjela discloses an acoustic transducer for transmitting seismic waves into a formation or receiving seismic waves having passed through a formation;

b) the well 10 being part of the acoustic transducer – instead, the transducer is disclosed *for use in a well* (Col. 1 lines 9-10) which makes the well not part of the transducer;

c) a reflector for reflecting the acoustic signal – segments 20 are tightly connected against the piezo-electric pellets 24 such that they are part of the transmitters, rather than reflectors;

d) a transmitter and a receiver within the chamber – instead Ounadjela discloses the drive members 22 within the chamber 14 to act as a transmitter or a receiver but not both;

e) a downhole sampling device – Ounadjela discloses a downhole acoustic source or receiver, but not a sampling device. No fluid can be sampled in volume 34, because there is a fluid-tight separation between the inside fluid in volume 34 and the external fluid Col. 5, lines 34-36. The presence of chamber 42 above piston 40 does not make Ounadjela into a sampling device, either. Sampling, according to Merriam-Webster's on-line edition (copy enclosed) pertains to the act, process, or technique of selecting a suitable sample for inspection or analysis, a sample being a representative part from a larger whole. The Offshore Minerals Management Glossary, as published by the US Department of Interior (<http://www.mms.gov/glossary/sa-sh.htm>), defines samples as "small quantities of well fluids obtained for analysis" (copy enclosed).

Contrastingly, Ounadjela's chamber 42 above piston 40 merely conveys pressure changes to the inside of the chamber (Col 5 lines 3-6). While there is a fluid present in chamber 42, it is not selectively sampled to represent a sample of a well-defined greater quantity. Moreover the fluid present in chamber 42 is not collected for inspection or analysis.

Each one of the features set forth above not being disclosed or taught in Ounadjela, forms a reason why the stated rejection of claim 1 under 35 USC § 102(b) is not supported by the art. Hence, reconsideration and, ultimately, withdrawal of the rejection is respectfully requested.

For at least the same reasons, the rejection of claim 2 is not supported by Ounadjela since claim 2 depends on claim 1 and thereby incorporates its features. Thus the rejection of claim 2 is also respectfully traversed.

In addition, it is respectfully remarked that the Office Action, in regard of claim 2, merely states that Ounadjela discloses a cylindrical vessel defining an internal bore having a vertical axis in which a piston 40 is slidably received (Col. 4 lines 58-59). That does not support a proper rejection of claim 2, which also calls for "the chamber" to comprise a piston. The Office Action defines tube 14 as "the chamber". Ounadjela discloses that the tube 14 is closed at each of its ends by a rigid plug 16 (Col. 3 lines 4-6). The piston 40, on the other hand, is part of compensation means 32 placed above the top of plug 16 (Col. 4, lines 56-57). It defines other chambers, at 42 and 36, which are distinct from volume 34 inside tube 14 (see last paragraph of Col. 4).

Thus, also for that reason, the rejection of claim 2 is not proper and reconsideration is respectfully requested.

Rejections made in Numbered Paragraph 4 of the Office Action

In Numbered paragraph 4 claims 1, 5, 20-23, 25, 34-36 and 38-39 have been rejected under 35 USC § 103(a) as being unpatentable over Coupland *et al* (US Pat. 6,912,891) in view of Ounadjela.

Attorney for Applicant respectfully traverses the rejections.

The rejection states that Coupland *et al* discloses an apparatus for acoustically analyzing a fluid comprising: a chamber (Fig. 8 shows a chamber for holding fluid) for holding the fluid; a transmitter (Fig. 8 shows a transducer within the chamber) positioned within the chamber for transmitting an acoustic signal through the fluid; a reflector (Fig. 8 shows a delay line) positioned within the fluid for reflecting the acoustic signal; and a receiver (Fig. 8 shows a transducer) positioned within the chamber for detecting a reflection of the acoustic signal. It is further stated in Numbered paragraph 4, that Coupland does not specifically disclose or suggest that the apparatus is incorporated in a downhole sampling device.

The rejection further argues that Ounadjela discloses a downhole acoustic transducer for use in a well such as an oil well (col. 1 lines 9-10), and that it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize in Coupland the downhole transducer of Ounadjela because it would provide a transducer capable of withstanding high pressure and high temperature encountered in boreholes for the purpose of generating or detecting acoustic waves in an efficient manner thereby, making the above combination more effective.

Attorney for Applicant respectfully requests that the rejections are withdrawn because they do not meet the standard of a *prima facie* case of obviousness as set forth in MPEP 2142 and 2143.

Firstly, there is no suggestion or motivation in the art to combine the reference teachings. Coupland *et al* disclose a method and apparatus of using ultrasonic reflectance to characterize physical properties of fluids. Specific fluids mentioned relate to food solutions such as milk, ketchup, syrup, chocolate, and other confectionary. Plastics manufacture, petroleum refining and pharmaceuticals manufacture are also mentioned, but there is no reference nor suggestion to use the apparatus in a down-hole setting. Hence, Coupland does not provide the person of ordinary skill in the art any suggestion to combine its teaching with a disclosure that is specific to a downhole apparatus, such as Ounadjela. Moreover, Ounadjela teaches a downhole acoustic transducer to determine characteristics of underground formations. Fluid characterization is not mentioned as such. Hence, Ounadjela does not provide a suggestion to combine with Coupland, which merely discusses fluid characterization. In absence of such suggestions, the combination itself would not have been obvious. The motivation to combine as set forth by the Examiner seems to benefit from hindsight.

Secondly, if the non-obvious combination of references is made, the references teach away from each other. Coupland's method and apparatus require ultrasound. Ultrasound consists of high frequency (>20 kHz) sound waves (see Col. 2, lines 20-21). The frequency range of interest for the tool of Ounadjela is typically 200 Hz to 2 kHz (Col. 5 lines 61-62), which is lower than 20 kHz. Ounadjela specifically teaches away from increasing the frequency in view of avoiding the resonance frequency (Col. 5 lines 61-62 and the paragraph bridging Columns 1 and 2). Because of this frequency mismatch, it would (contrary to the Examiner's statement) not have been obvious to utilize in Coupland the downhole transducer of Ounadjela.

Thirdly, the combination of references fails to teach each and every feature of the claim. It has been stated in the Office Action that Coupland does not specifically disclose or suggest the apparatus being incorporated in a downhole sampling device. As set forth in the

previous paragraph of the present response, under e), Ounadjela fails to disclose a downhole sampling device, as well.

Thus, for any one of these reasons, no *prima facie* case of obviousness has been established against claim 1, and claims 5 and 38-39 which depend on claim 1.

Regarding claim 20, the Office Action merely states that claim 20 is similar in scope with claim 1 and therefore, it is rejected for the same reasons set forth for that claim. Furthermore, Ounadjela is said to disclose reference 10 designates an oil well traversing an underground formation which is to be investigated (col 2 lines 52-53).

Attorney for Applicant respectfully traverses this rejection, for any of the reasons as set forth above regarding claim 1 as well as for an independent reason as will now be explained.

Claim 20 calls for “drawing a formation fluid from an earth formation” and “transmitting an acoustic signal from the transmitter through the fluid”. Neither Coupland nor Ounadjela discloses nor teaches drawing a formation fluid from an earth formation. Ounadjela discloses a tool for transmitting seismic waves into the geological formation (or receiving seismic waves having passed through the formation) so Ounadjela does not disclose nor teach a need for drawing a formation fluid from the formation. Coupland does not teach such need, either.

So in addition to the reasons set forth in respect of claim 1, also for this reason the Office Action fails to establish a *prima facie* case of obviousness against claim 20 and claims 21-23, 25, 34-36 which depend on claim 20.

Therefore Attorney for Applicant respectfully requests withdrawal of the rejections set forth in Numbered paragraph 4 of the Office Action based on Coupland in view of Ounadjela.

Rejections made in Numbered Paragraph 5 of the Office Action

Numbered paragraph 5 of the Office Action rejects claim 37 under 35 USC § 103(a) as being unpatentable over Coupland *et al* in view of Ounadjela and further in view of Birchak *et al* (US Pat. 5,741,962).

The rejection states that Coupland in view of Ounadjela does not disclose a wireline fluid sampling tool. It is then stated that Birchak discloses a wireline 23. It would allegedly have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Coupland in view of Ounadjela the techniques Birchak because it would allow the passage of the device into the wellbore by means of a wireline into a desired depth thereby permitting a reliable investigation.

Attorney for Applicant respectfully traverses the rejection.

Attorney submits that Birchak discloses a system of *in situ* testing of formation fluid conditions and for selectively collecting substantially mud filtrate-free formation fluid samples

at original formation conditions. According to the paragraph bridging columns 4 and 5, and Figs. 1 A to C, an acoustic density cell 15 is provided on the flowline 14 which flowline directs the fluid into the sample chamber 18 as regulated by sample chamber valve 17. When valve 17 is closed, the fluid in flowline 14 is discharged into the borehole 21 via equalization valve 20.

The purpose of this, as explained in the paragraph starting in Col. 10 line 10, is to monitor the fluid flow. Before actually allowing sampled fluid to enter the chamber 18, the fluid is discharged via valve 20 while its density is being monitored in acoustic density cell 15. Only after it is determined that the formation fluid flowing through flowline 14 is representative of the in-situ conditions, the sample chamber 17 is opened and equalization valve 20 closed to direct the fluid into sample chamber 18 until it is filled.

According to Fig. 2 and 3, the transducers (108,116), which in Col. 5 lines 30-31 are said to be used as an acoustic signal transmitter or receiver, are located outside of the flowline 102.

It is not disputed that Birchak indeed discloses a wireline 23 such as has been suggested in the Office Action. However, the rejected claim 37 depends on claim 1, against which, as substantiated above, no *prima facie* case of obviousness has been established based on Coupland in view of Ounadjela. It will now be explained why no *prima facie* case against claim 1 (and thus also not against claim 37) has been established by further involving Birchak.

Firstly, as set forth above, there is no motivation in the art to combine Coupland with Ounadjela making the combination itself non-obvious. Consequently, the combination of the three references, Coupland in view of Ounadjela in further view of Birchak is also non-obvious. Hence, no *prima facie* case of obviousness has been established using the combination of the three cited references.

Moreover, it has been shown that, even if Coupland and Ounadjela would be combined, the references teach away from each other in addition to the combination of references not disclosing or teaching every claimed feature. Hence, also for this reason, no *prima facie* case of obviousness has been established by the combination of the three cited references.

However, Ounadjela was, in Numbered paragraph 4, applied in view of Coupland to show the obviousness of incorporation into a downhole sampling device. Attorney respectfully observes that Birchak shows a downhole tool wherein formation fluids are sampled. Hence, perhaps Ounadjela is not needed to show obviousness of incorporation into a downhole sampling device, if Coupland is applied in view of Birchak.

Attorney for Applicant has studied this, and respectfully submits that he believes that a combination of Coupland with Birchak alone, without invoking Ounadjela, would not render

the invention, as claimed, obvious. Claim 37, by incorporation of claim 1, calls for a transmitter positioned within the chamber and a receiver positioned within the chamber and a reflector positioned within the fluid.

As explained above, Birchak discloses transmitter and receiver outside of a flowline leading into a chamber.

It has been argued in Numbered paragraph 4 of the Office Action that Fig. 8 of Coupland shows a chamber for holding the fluid. With respect to the placement of the transducer, two embodiments are disclosed. In the first one, the transducer is simply attached to the outer wall of the chamber whereby the wall of the chamber functions as a delay line (Col. 5 lines 43-48). In the second one (Col. 5 lines 49-54), the delay line is directly connected to the transducer to create a probe which can be inserted into the fluid.

The first embodiment of Coupland, when combined with Birchak, does not have every claimed feature because such combination would not show a transmitter positioned within the chamber and a receiver positioned within the chamber and a reflector positioned within the fluid. Hence, that would not make a *prima facie* case of obviousness in respect of present claims 37 and 1.

The second embodiment is technically not combinable with Birchak, because there would not be sufficient space in the flowline to incorporate the probe of Coupland. Moreover, inserting a probe into a flowline would seriously affect the function of a flowline, which is to allow a fluid to flow through it. A person skilled in the art would not be motivated to adopt Coupland's second embodiment into Birchak's device, because it would obstruct flow in the flow line.

It could be argued that a combination of Birchak with Coupland could encompass inserting Coupland's probe in chamber 18 of Birchak. There would, however, be no motivation for that either, since the entire point of providing Birchak's acoustic density cell 15 against flow line 14 is to make the fluid analysis before the fluid is directed into chamber 18, such as to take a decision on whether to discharge into the borehole 21 or to direct into chamber 18.

Therefore, also for that reason, the rejection does not seem to provide a *prima facie* case of obviousness.

Finally, it will be respectfully explained why, in Attorney's opinion, Birchak in view of Ounadjela would not render claim 37 obvious. Again, claim 37 incorporates the features of claim 1 by reference, and Ounadjela was cited against claim 1 under 35 USC § 102(b).

It is respectfully submitted that is no suggestion or motivation to combine these two references. Ounadjela discloses a downhole acoustic transducer for transmitting seismic waves into the formation, which has little to do with the taking and analyzing of fluid samples. There is thus no suggestion present in Ounadjela to combine this tool with an apparatus for

analyzing and retrieving a formation fluid. Likewise, there is no suggestion in Birchak to combine the tool disclosed therein with a seismic tool, since seismic typically infers to waves excited in the earth.

But even when these two references would be combined, they teach away from each other. Firstly, Birchak calls for a frequency of operation varying from 0.3 to 10 MHz (Col. 6 lines 17-18). Lower frequencies would compromise on the operation of Birchak, since then the pulses would be too long compared to the available travel time in the acoustic density cell (see Fig. 4A). Birchak's frequency range is much higher than the frequency range of interest of typically 200 Hz to 2 kHz that Ounadjela calls for. Ounadjela specifically teaches away from increasing the frequency in view of avoiding the resonance frequency (Col. 5 lines 61-62 and the paragraph bridging Columns 1 and 2). Because of this frequency mismatch, it would not have been obvious to utilize in Birchak the downhole transducer of Ounadjela.

Moreover, the downhole transducer of Ounadjela is too big and strong to replace the transducers of Birchak. Ounadjela even teaches to occupy a relatively large volume of tube 14 by the piezoelectric elements 24. When applied to the flow tube of Birchak, the flow would be so much obstructed that its function is severely compromised.

In conclusion, it is respectfully submitted that no *prima facie* case has been established against claim 37 (and claim 1) by applying Coupland in view of Ounadjela in further view of Birchak, nor by applying Coupland in view of Ounadjela. It is also respectfully submitted that the claimed invention is not obvious when Coupland would be applied in view of Birchak, nor when Birchak would be applied in view of Ounadjela.

Therefore, reconsideration is respectfully requested and ultimately withdrawal of the rejection of claim 37.

Rejections made in Numbered Paragraph 6 of the Office Action

In Numbered paragraph 6 claims 2-4 have been rejected under 35 USC § 103(a) as being unpatentable over Coupland *et al* in view of Ounadjela and further in view of Brown *et al* (US Pat. 6,467,544).

The rejection states that Coupland shows in Fig. 8 a chamber which comprises a sealed first end, a motor. However, it does not disclose a piston slidably disposed within a second end of the chamber and a conduit for introducing the fluid into the chamber. It is further stated in the rejection that Brown *et al* disclose the sample module includes a chamber for receiving and storing fluid, and a piston slidably disposed in the chamber (see Col. 3, lines 21-23). The Office Action claims that it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Coupland *et al* the slidable piston of Brown because it would define a sample cavity and a buffer/pressurization cavity,

the cavities having variable volumes determined by movement of the piston thereby obtaining effectively the pressurization cavity to control the pressure of the collected sample fluid in an efficient manner.

Attorney for applicant respectfully traverses these rejections.

The rejected claims depend on claim 1, against which, as has been substantiated above, no *prima facie* case of obviousness has been established based on Coupland in view of Ounadjela. It will now be explained why no *prima facie* case against claim 1 (and thus also not against claims 2-4) has been established by further involving Brown.

Firstly, as set forth above, there is no suggestion or motivation in the art to combine Coupland with Ounadjela making the combination non-obvious. Consequently, the combination of the three references, Coupland in view of Ounadjela in further view of Brown is also non-obvious. Hence, no *prima facie* case of obviousness has been established by the combination of the three cited references.

Moreover, it has been shown that, even if Coupland and Ounadjela would be combined, the references teach away from each other in addition to the combination of references not disclosing or teaching every claimed feature. Hence, also for this reason, no *prima facie* case of obviousness has been established by the combination of the three cited references.

However, Ounadjela was, in Numbered paragraph 4, applied in view of Coupland to show the obviousness of incorporation into a downhole sampling device. Attorney respectfully observes that Brown shows a sample module for use in a downhole tool. Hence, perhaps Ounadjela is not needed to show obviousness of incorporation into a downhole sampling device, if Coupland is applied in view of Brown alone.

Attorney for Applicant has studied this, and respectfully submits that he believes that a combination of Coupland with Brown alone, without invoking Ounadjela, would not render the invention, as claimed, obvious.

Coupland *et al* are concerned with an ultrasonic reflection technique to characterize in particular food solutions.

Brown *et al* are concerned with improvements specifically relevant for collecting subsurface formation fluid samples, such as "low shock sampling" (Col. 9 lines 42-45), and avoiding "dead volume" which is specifically a problem related with sampling at downhole conditions.

Brown *et al* offers certain advantages, as pointed out in the Office Action, but these are not relevant for the technology of Coupland *et al*. For instance, while being useful for downhole sampling, it would not have been obvious to adopt the piston arrangement as disclosed by Brown *et al* into the teaching of Coupland *et al*, because it would add complexity for which there is no need because Coupland *et al* aim to simply measure the

food solutions in their processing equipment or packaging. In fact, Coupland *et al* even state that “there is little or no need for modification of existing equipment in order to use the invention in a working plant under real conditions”. Coupland *et al* thus teach away from adding complicated sampling equipment of Brown *et al*.

Thus, it is respectfully submitted that it would not have been obvious to combine Coupland *et al*'s disclosure with that of Brown *et al*.

This also follows from MPEP 2143.01, which discusses that the desirability of the claimed invention must be suggested in the prior art. However, in the present case there is no teaching in Coupland *et al*. to combine the acoustic with a downhole sampling device, nor in Brown *et al*. to incorporate in their device an apparatus for acoustically analyzing a fluid. Even if all aspects of the claimed invention were known in the art, this fact alone is not sufficient to establish a *prima facie* case of obviousness without an objective reason to combine the teachings of the references. In the present case, as seen from the skilled artisan who has to rely on the art as published, such objective reason is not provided in the art but only in the patent application that is under examination.

The arguments provided above are not only also relevant to the claims 2-4 (to which the Examiner originally applied Coupland *et al* in view of Ounadjela further in view of Brown *et al*), but also to amended claim 1. In conclusion, it is therefore submitted that the claims are not obvious over Coupland *et al* in view of Brown *et al*, either.

Hence, reconsideration, and withdrawal of the rejections, are respectfully requested.

Rejections made in Numbered Paragraph 7 of the Office Action

In Numbered paragraph 7 under header “Claim Rejections – 35 USC § 103”, claims 11-12 have been rejected under 35 USC § 103(a) as being unpatentable over Coupland *et al* in view of Chung *et al* (US. Pat. Re 33,837).

Regarding claim 11, the Office Action specifically states that Coupland does not disclose first and second electromagnetic coils being independently driven for manipulating the reflector. It is then stated that Chung discloses that rods 66 and 70 may, for example, be prestrained by corresponding permanent magnets 120 and 1122 carried above them in reflector 76. Alternatively electromagnetic coils may be substituted for magnets 120 and 122 in some applications in which permanent magnets might be prohibitively bulky.

The argument continues by stating that it would have been obvious to one of the ordinary skill in the art at the time of the invention to utilize in Coupland the electromagnetic coils of Chung because whereas magnetostrictive material having a positive strain constant will elongate (and magnetostrictive material having a negative strain constant will contract) with magnetization independent of the sign (positive or negative) of the magnetic field applied, the amount of such movement is related to the absolute magnitude of the applied

magnetic field thereby making the above combination able to drive or manipulate the reflector effectively.

Attorney for applicant respectfully traverses the rejections.

Firstly, it is respectfully submitted that the Office Action fails to establish a *prima facie* case of obviousness because it fails to show how Coupland *et al* in view of Chung *et al* are applied claim 1 while these features are incorporated into claims 11 and 12 by reference.

Assuming that Examiner in fact had intended to base the rejections on Coupland *et al* in view of Ounadjela and further in view of Chung *et al*, Attorney would observe as follows.

Firstly, as set forth above, there is no suggestion or motivation in the art to combine Coupland with Ounadjela making the combination non-obvious. Moreover, it has been shown that, even if Coupland and Ounadjela would be combined, the references teach away from each other, in addition to the combination of references not disclosing or teaching every claimed feature. One particular feature not disclosed was incorporation into a downhole sampling device. Chung *et al* do not disclose or suggest a downhole sampling device, either. Rather, Chung *et al* disclose a logging sonde that generates an acoustic wave and transmits it into the earth.

Thus, due to lacking motivation to combine and failure to disclose every claimed element, no *prima facie* case of obviousness has been established against claims 11 and 12, nor against claim 1, by the combination of the three cited references.

Moreover, a careful review of Chung *et al*, revealed that the magnets 120 and 122 serve to prestrain the rods 66, 70, and not the reflector 76 as was alleged by the Examiner (see, for instance, Col. 11 lines 63-65). Hence, contrary to the statement in paragraph 7 of the Office Action, these magnets are not for manipulating the reflector.

Consequently, reconsideration and withdrawal of these rejections based on Coupland *et al* in view of Chung *et al* are kindly requested.

Rejections made in Numbered Paragraph 8 of the Office Action

In Numbered paragraph 8 under header "Claim Rejections – 35 USC § 103", claim 24 has been rejected under 35 USC § 103(a) as being unpatentable over Coupland *et al* in view of Lynnworth (US Pat. 5,515,733).

Attorney for Applicant respectfully traverses the rejection.

Firstly, it is respectfully submitted that the Office Action fails to establish a *prima facie* case of obviousness because it fails to show how Coupland *et al* in view of Lynnworth are applied claim 20 while these features are incorporated into claim 24 by reference.

Assuming that Examiner in fact had intended to base the rejections on Coupland *et al* in view of Ounadjela and further in view of Lynnworth, Attorney would observe as follows.

Firstly, as set forth above, there is no motivation in the art to combine Coupland with Ounadjela making the combination non-obvious. Moreover, it has been shown that, even if Coupland and Ounadjela would be combined, the references teach away from each other, in addition to the combination of references not disclosing or teaching every claimed feature. At least not disclosed are "incorporation in a downhole sampling device", "drawing a formation fluid from an earth formation", etc.

Lynnworth does not disclose or suggest these elements, either.

Thus, due to lacking motivation to combine and failure to disclose every claimed element, no *prima facie* case of obviousness has been established against claim 24, nor against claim 20 on which claim 24 ultimately depends.

Consequently, the Examiner is kindly requested to reconsider and withdraw the rejection based on Coupland *et al* in view of Lynnworth.

Concluding remarks

Attorney has addressed each and every ground for objection and rejection raised by the Examiner in the Office Action. Attorney respectfully submits that the claims, both new and as amended, are now in a state ready for allowance. In the event the Examiner has any questions or issues regarding the present application, the Examiner is invited to call the undersigned prior to the issuance of any written action.

Respectfully submitted,

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